immensely more probable that it is a residue from solution of the limestone.

The paper is well illustrated, and one photograph shows an "anemolite," or stalactite the growing tip of which has been bent sideways by the action of air-currents.

Mr. Brodrick has also published a general account of the explorations in Fermanagh in the Yorkshire Ramblers' Club Journal. G. A. J. C.

NOTES.

THE following fifteen candidates have been selected by the council of the Royal Society to be recommended for election into the society:—Mr. J. Barcroft, Prof. G. C. Bourne, Prof. A. P. Coleman, Dr. F. A. Dixey, Dr. L. N. G. Filon, Mr. A. Fowler, Dr. A. E. Garrod, Mr. G. H. Hardy, Dr. J. A. Harker, Prof. J. T. Hewitt, Prof. B. Hopkinson, Dr. A. Lapworth, Lieut.-Colonel Sir W. B. Leishman, Mr. H. G. Plimmer, and Mr. F. Soddy.

INVITATIONS have been issued to meet the general board of the National Physical Laboratory at the laboratory on Friday, March 18, when the various departments will be open for inspection, and apparatus will be on view.

SIR VICTOR HORSLEY, F.R.S., has been elected a foreign associate of the French Academy of Medicine.

DR. W. F. HUME has been appointed director of the Geological Survey of Egypt.

MR. ANDREW CARNEGIE has offered (the *Times* states) to give a prize of 5000*l.* to the first student of the Carnegie School of Technology at Pittsburg who constructs an aëroplane satisfying certain conditions.

THE Friday evening discourse at the Royal Institution on March 11 will be delivered by Dr. H. Brereton Baker on "Ionisation of Gases and Chemical Change," and on March 18 by Sir J. J. Thomson on "The Dynamics of a Golf Ball."

THE death is reported, at the early age of thirty-three, of Mr. J. F. Ferry, for many years an ornithologist in connection with the Field Museum, Chicago. In collecting for that museum he made expeditions among the islands of the Caribbean Sea and along the coast of the Gulf of Mexico. He also carried out investigations in Arizona for the U.S. Biological Survey, and in the mountains of California for the Smithsonian Institution.

THE following appointments have been made recently by the governing body of the Lister Institute of Preventive Medicine:—Mr. H. R. Dean and Dr. G. H. Macalister, assistant bacteriologists to the institute; Dr. H. McLean, senior assistant in the bio-chemical department; Mr. Ashley Cooper, Jenner memorial research student; Mr. Roland V. Norris, Grocers' Company research student; Mr. S. G. Paine, research student in the chemical department.

THE annual conversazione of the Selborne Society was held in the theatre and halls of the Civil Service Commission on Friday, February 18. Sir John Cockburn, K.C.M.G., gave an address on the objects of the society and the aims of its members, while Mr. E. J. Bedford lectured on "Gilbert White and his Associations with Selborne." Among the interesting exhibits was a working model of a pole-lathe still in use for turning bowls in Berkshire, which was made and exhibited by Mr. William Lawrence. The number of microscopes shown amounted to one hundred, and the evening was probably the most successful yet arranged.

THE Geologists' Association is making arrangements for an Easter excursion to north Devon. It is intended that the excursion shall last from March 24 to March 30, and be under the directorship of Messrs. J. G. Hamling and Inkermann Rogers. The official party is to leave Paddington by the 1 p.m. train on March 24 for Barnstaple. On successive days the Upper Culm Measures, the Upper Devonian, the Lower Culm, and the Lower Devonian are to be studied in different districts. Full particulars as to the excursion can be obtained from Mr. Mark Wilks, 47 Upper Clapton Road, London, N.E.

THE Blue Hill Meteorological Observatory, situated near Boston, U.S.A., has just completed an existence of a quarter of a century. Founded and maintained by Prof. A. Lawrence Rotch, detailed measurements of cloud heights and velocities were early conducted, and in 1894 the first meteorological records in the world were obtained with kites at this station. These were extended ten years later with sounding balloons to great heights above the centre of the American continent, and, through the co-operation of M. Teisserenc de Bort, over the Atlantic Ocean (NATURE, vol. lxxiii., pp. 54–6, 449–50; vol. lxxx., pp. 219–21). These observations in the free air, like those made elsewhere in the interest of aërology for the International Commission for Scientific Aëronautics, have now become useful to aëronauts and aviators.

PROF. W. KRAUSE, whose death was recently announced from Berlin, at the age of seventy-six, was one of the better known of modern German anatomists. He was a son of the famous Dr. Carl Krause, professor of anatomy in the University of Hanover, who published a remarkable text-book of anatomy—"Handbuch der menschlichen Anatomie"—in 1833. The preparation of the third edition of this work, from 1876 to 1880, constitutes one of the most important contributions made to anatomy by the late Prof. W. Krause. His researches on the terminal organs (end-plates) of motor nerves gained him an early and wide reputation among histologists. Originally professor of anatomy in the University of Göttingen, he went, late in life, to Berlin, where he occupied the position of head of the anatomical laboratories of the University, under the directorship of the veteran anatomist, Prof. Waldeyer.

FEBRUARY was a stormy and unsettled month over the whole of the British Islands, and the total rainfall was large. At Greenwich the mean temperature for the month was 42·1°, which is 2·3° warmer than the average of the previous sixty years; the mean of the day readings was 48°, and the mean of the night readings was 36°. Frost occurred in the screen on seven nights, but on the grass in the open on fifteen nights. The aggregate rainfall at Greenwich was 2·72 inches, which is 1·23 inches more than the average; rain fell every day with three exceptions. February was wetter than any corresponding month during the last ten years. The sun was shining for seventy hours, which is thirteen hours in excess of the average. Cyclonic systems traversed our islands with great frequency during the month, the central areas following a track well to the northward, so that westerly winds greatly predominated. The Meteorological Office, alluding to the violent gale which occurred on Sunday, February 20, mentions that the squalls reached "storm" force in many parts of the country, and "hurricane" force at Southport, Scilly, and Pendennis Castle. The maximum velocity of the wind at Southport was at the rate of more than eighty-five miles an hour, using the new factor for the wind velocity as determined by the Meteorological Office.

The Royal Meteorological Society held its first meeting out of London on Wednesday, February 23, in the physical laboratory of the Manchester University. Dr. Hopkinson, the Vice-Chancellor, expressed the gratification the University felt at receiving the fellows of the society. He said that the history of the University showed that they were not merely in expression, but in act, interested in this branch of scientific work, as much had been accomplished in meteorology by the work initiated and supported by Dr. Schuster. Dr. A. Schuster also welcomed the society, and said that, although meteorology in itself might be regarded by some as a small part of physical science, yet it was intimately connected with a number of other subjects, especially with one large subject which he thought had received far too little attention in the universities, namely, the whole physics of the globe.

We learn from *Science* that the board of managers of the National Geographic Society has adopted the following resolutions:—"The National Geographic Society believes that it is of importance to science that tidal, magnetic, and meteorological observations shall be obtained at or in the vicinity of Coats Land during the same period that the British expedition under Captain R. F. Scott, R.N., is making similar observations on the other side of the Antarctic area, 1800 miles distant, and at the same time that this recently discovered land shall be explored. That the society is ready to accept Mr. Peary's proposition that it shall undertake jointly with the Peary Arctic Club an expedition to the Antarctic regions as outlined above, provided that the board of managers, after consultation with the members of the society, finds that the project will receive sufficient financial assistance to warrant the undertaking."

Dr. Charcot gives. in the Paris edition of the *New York Herald* an account of the scientific work accomplished by his recent Antarctic expedition. He says that during the whole duration of the expedition, both while in winter quarters and during the two voyages, the scientific work was carried out unceasingly. During the whole of the voyages oceanographic soundings were taken and dredgings made. At the same time hydrographic and meteorological observations were made, and natural-history studies effected. These were also carried out while in winter quarters. Very complete maps were made of the regions seen from the coasts, and astronomical observations and studies in terrestrial gravitation were carried out at numerous stations. The seismograph was at work in the winter quarters and on Deception Island. Observations in meteorology, atmospheric electricity, and physical oceanography, including numerous soundings, were carried on almost continually while the expedition was in winter quarters.

The thirty-second annual general meeting of the Institute of Chemistry was held on Tuesday, March 1, Dr. George Beilby, F.R.S., president, in the chair. In moving the adoption of the report of the council, Mr. David Howard alluded especially to the new requirement in the final examination of a useful knowledge of French and German. He believed that this addition would prove of great benefit to chemists, and he knew that it could be left to the examiners to apply the test of this knowledge humanely. They did not want school, commercial, or legal French and German, but a useful knowledge sufficient to enable them to consult technical literature in those languages. Dr. Beilby then delivered his address. He remarked that the institute had undoubtedly influenced the teaching of the universities and colleges, and had endeavoured to encourage the production of men who could not only talk about chemistry, but were able to apply their knowledge usefully. In moving a vote of thanks for the address, Sir William Ramsay said he was inclined to think that the tendency was to trust too much to the results of examinations. He was of opinion that the aim of the examiners should be to ascertain if the candidates could converse freely and easily on their subject and put it into practice.

A prize of 3000 lire (about 120*l.*) is to be awarded by the section of physical sciences of the Royal Academy of Bologna. The competition is an international one, and the prize is due to a generous donation to the section by a corresponding member, Prof. Elia de Cyon. The object of the competition is to further researches and studies in the subjects which he took up with much success. The subjects of the works submitted for the prize are to have reference particularly to:—(1) the functions of the heart, and especially of the nervous, cardiac, and vaso-motor systems; (2) the functions of the labyrinth of the ear; (3) the functions of the thyroid gland, the hypophysis, and the pineal gland. The works submitted must be of recent date, in the case of the present (the first) competition not prior to March 1, 1909. Memoirs may be written in Latin, Italian, French, German, or English. Competitors may be called upon to repeat their experiments in the presence of the three members of the adjudicating committee. The prize will not be divided, and may not be conferred more than once upon the same person. The section of physical sciences reserves the right to publish the successful paper in its Transactions. No member of the section is eligible for the competition. Further particulars may be obtained from Il Segretario, Classe di Scienze Fisiche, R. Accademia delle Scienze, Bologna.

In our issue for December 23 last we recorded Mr. Otto Beit's munificent gift of 215,000*l.* for the foundation and endowment of medical research scholarships. The trustees of the fund met on February 23, and awarded the first set of the fellowships. Seventy applications were received—fifty-eight from England, three from Scotland, one from Ireland, one from Wales, and seven from abroad. The following fellows were elected, and were authorised to proceed with the researches mentioned after their names:—Mr. G. H. Drew, the zoological distribution of cancer and a systematic study of an experimental character on the mode of origin of neoplasms (tumours); Dr. F. W. Edridge-Green, various problems connected with vision and colour-vision, especially in relation to the correct reading of signals on land and sea; Mr. E. Hindle, the morphology and treatment of protozoic blood parasites, especially *Spirochaeta duttoni* and trypanosomiasis (sleeping sickness); Dr. T. Lewis, the mechanism of irregularities of the heart; Dr. G. C. McKay Mathison, (*a*) the nervous control of respiration, and (*b*) the effect on respiration of changes in the chemical composition of the blood; (*c*) the mechanism of biliary secretion and its general effect in digestive processes; Dr. Otto May, clinical and experimental research on the lesions of peripheral nerves; Mr. E. Mellanby, the significance of the large excretion of creatin in cancer of the liver and its diminished excretion in cirrhosis of the liver, &c.; Dr. F. P. F. Ransom, the mode of action of caffeine, theobromine, and allied substances on the muscular and nervous systems; Dr. S. Russ, the association of radio-activity with cancer; Dr. Ida Smedley, the processes involved in the formation of fat in the organism. The next election of fellows will be held about December 15 next. All inquiries should be addressed to the honorary secretary, Beit Memorial Fellowships for Medical Research, 35 Clarges Street, Piccadilly, London, W.

THE death is announced of M. Philippe Thomas, the eminent and enthusiastic geologist who did important pioneer work in Tunis and Algeria. Born at Duerne (Rhône) in 1843, he entered the veterinary school at Alfort in 1860, and became a prominent member of the French army veterinary service, from which he retired about nine years ago. From his earliest youth he was deeply interested in geology, and when his official appointment took him to Algeria he devoted his scanty leisure to the study and collection of the rocks and fossils of that country, and was especially eager in the search for evidence of primitive man. During twenty years he published a series of notes and papers on subjects ranging from man and Tertiary vertebrates to the stratigraphy of the region. In 1884 he was chosen by the Minister of Public Instruction to join the well-known scientific mission to Tunis as one of the geologists, and there he had ample scope for the exercise of his abilities. He discovered the immense deposits of phosphatic chalk, which have subsequently proved of so great economic importance to Tunis. He amassed material for an exhaustive description of the geology of the country, and his later years were occupied with its preparation for publication. Unfortunately, only two parts of this work appeared, and the third part, dealing especially with the phosphatic deposits, remained unfinished at the time of the author's death.

AN appreciative account of the scientific work of Mr. Edward Saunders, F.R.S., who died, we regret to learn, on February 6, in his sixty-second year, appears in the March number of the *Entomologist's Monthly Magazine,* of which he was an editor. From this notice we extract the following particulars of Mr. Saunders's career:—Edward Saunders devoted himself first to the Coleoptera, but acquired also considerable familiarity with entomology in general, and with several other of the "systematic" sciences, such as botany and conchology. At the age of sixteen he published a paper in the first volume of the *Entomologist's Monthly Magazine* on Coleoptera at Lowestoft, and was afterwards for some years mainly occupied in studying the Buprestidæ of the world. A succession of notes, descriptions, revisions of particular collections, groups, &c., bearing on this subject were communicated by him to the Transactions of the Entomological Society from 1866 to 1869; in 1870 he published a "Catalogue of the Species contained in the Genus Buprestis, Linn.," and in 1871 his "Catalogus Buprestidarum Synonymicus et Systematicus," a work the importance of which was immediately recognised. From 1872 to 1874 he continued his work on this group, describing several new genera and more than a hundred new species, and at the same time began to issue a long series of notes on British Hemiptera, which were followed in 1875–6 by a synopsis, in three parts, of the British Hemiptera-Heteroptera, and this again by a large illustrated volume, his well-known "Hemiptera-Heteroptera of the British Isles," which was published in 1892. Concurrently with this important mass of work on two distinct orders of insects he began to attack a third group, the Aculeate Hymenoptera, to which he gradually transferred his chief attention. For the rest of his life the Aculeates (especially the British species) became his favourite study, and he ultimately became, not merely the foremost, but, it may almost be said, the final authority upon the latter. His grand work "The Hymenoptera-Aculeata of the British Isles" (1896) is one of the few without which no serious hymenopterist thinks his working library complete. Saunders became a Fellow of the Entomological Society in 1865, served as treasurer from 1880 to 1890, and was a vice-president in no fewer than five sessions, viz. in 1874, 1899, 1901, 1906, and 1907. Though he never actually held the presidency, it is scarcely a secret that he would more than once have been elected to it unanimously if he could have been persuaded to accept a post the duties of which he felt unequal (physically) to discharge so completely as he would have wished. He entered the Linnean Society in 1869, and about that time contributed at least three papers to its journal. Long after, in 1890, he published in the same journal an exceedingly careful and interesting paper on the tongues, &c., of bees, with beautiful illustrations, drawn by his brother, Mr. G. S. Saunders, from microscopic preparations made by Mr. Enock. His election in 1902 to the honour of fellowship in the Royal Society was not only highly gratifying to himself and his personal friends, but to all who saw in it a recognition of systematic entomology, treated as Saunders treated it as no mere idle dilettantism, but a genuine branch of science.

ONE of the features of the fauna of continental Africa is the absence of flying-foxes of the typical genus Pteropus, this absence extending also to the island of Zanzibar. On the other hand, representatives of these bats occur in Madagascar and the Mascarene, Comoro, and Seychelles group. Recently, specimens of a new species of flying-fox have been obtained from the island of Pemba, which lies to the north of Zanzibar at a distance of only about 37½ miles from the mainland. That the genus should be found so close to the African continent, and yet should never have reached the same, is very remarkable, especially when the long interval between the Comoros and Seychelles, on the one hand, and the Andamans and Ceylon, on the other, is borne in mind. The Pemba species, which is described by Dr. P. Matschie in the *Sitzungsberichte Ges. naturfor. Freunde*, Berlin, 1909, p. 482, belongs to the short-nosed group of the genus distinguished as Spectrum, and has been named *Pteropus voeltzkowi.*

IN vol. xxxii., part i., of Notes from the Leyden Museum, Dr. F. A. Jentink describes a new bat from Java, and at the same time proposes the name Chrysopteron for the Celebesian *Cerivoula weberi* and the new species, which are regarded as constituting a genus by themselves. The typical plantain-bats of the genus Cerivoula (Kerivoula) are characterised by the normal form of the upper canines and the tricuspid first pair of lower incisors; a second genus, Phoniscus, as represented by *P. atrox* of Sumatra, differs by the elongation and compression of the shaft of the upper canines and the quadricuspid first lower incisors, while the new genus is characterised by the presence of four cusps to both first and second lower incisors. It may be pointed out that Chrysopteron, which includes the Celebesian *C. weberi* and the Javan *C. bartelsi*, is practically identical with the much earlier name Chrysoptera.

CONSIDERABLE interest attaches to two papers, by Mr. Knud Andersen, in the January number of the *Annals and Magazine of Natural History* on the African fruit-bats of the Epomophorus group. Hitherto, with the exception of *Hypsignathus monstrosus*, all these bats have been very generally included in the single genus Epomophorus. The author shows, however, that the Angolan *E. anchietae*, on account of possessing $\frac{4}{6}$ pairs of cheek-teeth (in place of the usual $\frac{3}{5}$), the great width of the palate, and other cranial characters, is entitled to rank as a genus by itself, for which the name Plerotes is proposed, this genus being intermediate between Rousettus (cheek-teeth $\frac{5}{6}$) and Epomophorus. Next to Plerotes comes the genus Epomops, as represented by *E. franqueti* and *E. comptus,* in which the muzzle and palate are also wide, although somewhat less so than in the Angolan genus, the hind portion of the palate retaining the flattened form characteristic of Rousettus and its allies. In Epomophorus, on the other hand, the palate is narrow and deeply hollowed out behind, thereby differing from the same region in all other members of the fruit-eating group. Lastly, we have the genus Micropteropus, characterised by the extreme shortness of the skull, which approximates in this respect to that of Cynopterus.

A short paper on the gametophytes of the orchid, *Calopogon pulchellus*, is contributed by Miss L. Pace to the *Botanical Gazette* (August, 1909), which adds to the gradually accumulating information regarding developmental details of the megasporangium. The formation of a single sporogenous cell, as generally observed, and absence of any parietal cells, coincides with the typical routine in orchids, but anomalous conditions appeared in several ovules where two mother-cells were found either contiguous or with nucellar tissue lying between. The figures are suggestive of two archesporia side by side, but the ultimate fate of these cells was not determined. Four megaspores were usually formed, although dividing walls between them were wanting; owing to disintegration of three of the nuclei, the chalazal nucleus alone persisted to become the nucleus of the embryo sac. Evidence in favour of double fertilisation is adduced.

A brochure dealing with the cultivation of fibre plants in India has been issued as Bulletin No. 15 of the Agricultural Research Institute, Pusa. There is a noteworthy division into peasants' crops, capitalists' crops, and fibres worth experimental attention. The first category comprises jute, *Hibiscus cannabinus*, *Crotalaria juncea*, and cocoa-nut; the second includes rhea, agave, Sansevieria, and flax, while plantain and sida fall into the third category. The cultivation of jute has not spread to any appreciable extent beyond the provinces of Bengal and Assam. *Hibiscus cannabinus* is preferred to jute in certain regions, notably the Vizagapatam and Kistna districts in Madras, because it requires less water. Sann hemp, *Crotalaria juncea,* thrives in districts of moderate rainfall; there is an established industry in the fibre in parts of the Central and United Provinces and of Assam, but the plant is more frequently grown to supply green manure or fodder.

The principal article in *Symons's Meteorological Magazine* for February is devoted to the "Proposed Imperial Meteorological Organisation," discussed at an informal conference of meteorologists at the Winnipeg meeting of the British Association last year. The circular letter drawn up by the committee then appointed for transmission to meteorological authorities of the British Empire, inviting cooperation in contributing data on a common plan for publication by a central agency, is reprinted, and states that, primarily, information is required as to pressure, temperature and rainfall, and their fluctuations from the normal, and it is suggested that the form adopted by the Solar Commission of the International Meteorological Committee, whose headquarters at the present time are in London, in connection with the Solar Physics Observatory, should be followed. Monthly tables relating to the climate of different parts of the British Empire have appeared in *Symons's Meteorological Magazine* for many years; the editor heartily welcomes the establishment of a more general system, under official auspices; at the same time, he does not think that a new system of expressing meteorological observations is desirable. The meeting at Winnipeg expressed an opinion in favour of the use of absolute units for pressure and temperature; for the present, however, the circular states, it is not proposed to ask the various authorities to come to any final decision upon the point.

From the February Bulletin of the American Mathematical Society we learn that the Göttingen Academy of Sciences has awarded 5*l.* to Dr. A. Wieferich, of Münster, who has shown that the equation $x^p+y^p=z^p$ cannot be solved in terms of positive integers, not multiples of p, if 2^p-2 is not divisible by p^2. The announcement is followed by the comment:—"This surprisingly simple result represents the first advance, since the time of Kummer, in the proof of the last Fermat theorem."

In the *Annals of Mathematics* (October, 1909) Mr. Frank Gilman discusses the theory of floating tubes as applied to the measurement of currents in open channels of water. The method was first described by Mr. T. A. Mann in a paper communicated to the Royal Society in 1779, and was used by R. T. Kraÿenheff in Holland (1813), M. de Buffon on the Tiber (1821), Destrem on the Neva (1835), and Francis in America (1852). The tubes ranged from 6 feet to 10 feet in length, and were allowed to float down the stream over a measured course of 70 feet. Other experiments mentioned are those of Captain Cunningham in India (1874–9), of which a detailed discussion is given in the paper, M. A. Graëff (1883), and Messrs. Humphreys and Abbot on the Mississippi River (1851–76).

The University of Illinois has established an engineering experiment station to carry on investigations along various lines of engineering. Especial attention has been paid to problems bearing on fuel, and the two last bulletins issued deal with this subject. The first of these, by J. M. Snodgrass, is on fuel tests with house-heating boilers. Central heating by steam is more common in the United States than in this country, but the figures given are not without interest over here. The fuels used, of which complete analyses are given, included anthracite, gas coke, bituminous coal, and briquettes of various kinds. The tests were very complete, and deal with questions of efficiency, cleanliness, cost of control, smoke, and soot. The boiler efficiencies determined varied from 45 to 66 per cent. The experimental data are discussed in a very complete manner, especially from the cost point of view. The only point open to criticism is the unnecessary number of significant figures in the experimental results. Thus we find the calorific value of a coal given as 14,229 B.T.U. per lb., and boiler efficiencies are given to 0·01 per cent. Three significant figures in the calorific value probably represent the limit of accuracy attainable in such experiments when the sampling difficulties are taken into account; an accuracy of 1 in 14,000 in a thermal measurement is certainly unattainable.

The second bulletin, by S. W. Parr and Percy Barker, deals with the occluded gases in coal. These experiments are of practical importance in two directions, first as bearing on the spontaneous combustion of coal, and secondly as showing how to prevent deterioration of stored coal. Coal commences to give off inflammable gases as soon as it is mined, and at the same time absorbs oxygen from the air, both these changes taking place with greater rapidity the finer the state of division of the coal, and both being almost entirely suppressed when the coal is submerged in water.

The *Zeitschrift für physikalische Chemie* (January 25) contains a paper, by J. T. Barker, on the determination of the vapour pressures of toluene, naphthalene, and benzene at temperatures ranging from −78° C. to 25·8° C. At the lower temperatures the statical method is not sufficiently exact, and hence the vapour pressures were measured by saturating pure oxygen, prepared electrolytically, with the vapour of the substance, the latter being maintained at a constant temperature. The amount of vapour carried away by the oxygen was determined by combustion, full details being given of the precautions necessary for exact working. The method was shown to be capable of measuring vapour pressures down to 0·005 mm. of mercury. The experimental results were compared with Nernst's formula for the calculation of vapour-pressure curves, and for toluene, naphthalene, and benzene; the agreement was found to be satisfactory.

AN interesting article appears in *Engineering* for February 25 giving particulars of a new shrinking and tempering shop for guns at Woolwich Arsenal. Modern built-up guns have steel tubes and liners which require oil-hardening, and as these guns are sometimes of great length, it will be understood that adequate means must be provided for lifting the guns to considerable heights. It was decided that the new building should be 300 feet long in the clear (the first part to be constructed being 150 feet), 60 feet wide, and 90 feet high from the floor-level to the gantry rail. It was also stipulated that an electro-hydraulic travelling crane should be installed capable of lifting 120 tons, and of travelling with its load at a speed of 75 feet per minute, the speed of the cross traverse under similar conditions being 35 feet per minute. Another requirement of this crane is ability to lower a weight of 60 tons at a speed of 500 feet per minute, this being of great importance on account of the necessity of dipping the guns rapidly into the oil in the process of hardening. Two deep pits, each 11 feet in diameter, are provided for oil-hardening tanks; also one shallower overflow pit, a driving pit 18 feet in diameter with an anvil bottom, and a shrinking pit.

MESSRS. CASSELL AND COMPANY, LTD., have commenced the publication, in fortnightly parts, sold at one shilling net each, of Mr. Richard Kearton's "Nature Pictures." The illustrations are beautifully reproduced, and are accompanied by descriptive text. The work will be completed in twenty-four parts, and we propose to review it when the serial publication is complete.

A SECOND edition of an essay entitled "The Finest Walk in the World," by Miss B. E. Baughan, which originally appeared in the *Spectator*, and was published recently in pamphlet form with numerous illustrations, has been issued by Messrs. Whitcombe and Tombs, Ltd., of Addle Hill, Carter Lane, London. The walk, some thirty-three miles in length, is in the neighbourhood of the celebrated Milford Sound, in the south-west corner of New Zealand. Judging from the beautifully reproduced photographs and the enthusiastic descriptive text which accompanies them, the walk must reveal a succession of panoramic views of Nature at her loveliest.

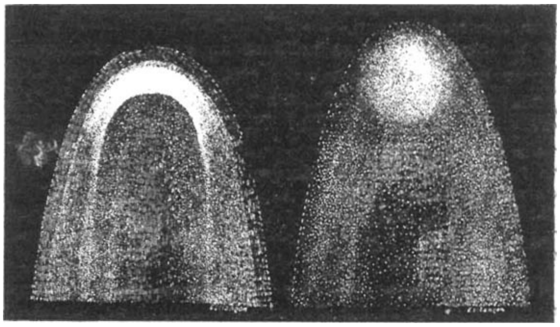
THE annual report of the board of regents of the Smithsonian Institution, showing the operations, expenditures, and condition of the institution for the year ending June 30, 1908, has been received. As usual, the general appendix of the volume, running to some 684 pages, will make the widest appeal to readers. It contains a representative selection of papers and addresses by distinguished men of science dealing with notable current scientific researches. Some of these are translations into English from German, French, and Swedish publications, others have appeared in NATURE from time to time, and the remainder are from American and British authors, some being original, while others are reprints. The following contributions may be mentioned:—Sir Joseph Thomson's Adamson lecture to the University of Manchester, on the light thrown by recent investigations in electricity on the relation between matter and ether; Prof. J. W. Gregory's contribution to the Congrès géologique international, Mexico, 1906, on climatic variations: their extent and causes; Prof. J. Joly's address to the geological section of the British Association at Dublin in 1908, on uranium and geology; Captain H. G. Lyons's lecture to the Royal Geographical Society, on some geographical aspects of the Nile; Prof. Ronald Ross's address to the Oxford Medical Society in 1906, on malaria in Greece; and Prof. Silvanus P. Thompson's Kelvin lecture of 1908 (abridged and revised by the author), on the life and work of Lord Kelvin.

OUR ASTRONOMICAL COLUMN.

ASTRONOMICAL OCCURRENCES IN MARCH:—

March 3. 12h. 0m. Venus stationary.
7. 0h. 39m. Uranus in conjunction with the Moon (Uranus 3° 34′ N.).
8. 9h. 17m. Venus in conjunction with the Moon (Venus 11° 52′ N.).
10. 6h. 0m. Vesta in conjunction with the Moon (Vesta 1° 9′ N.).
13. 2h. 45m. Saturn in conjunction with the Moon (Saturn 0° 58′ N.).
15. 19h. 17m. Mars in conjunction with the Moon (Mars 1° 16′ N.).
18. 17h. 0m. Venus at greatest brilliancy.
25. 18h. 21m. Jupiter in conjunction with the Moon (Jupiter 2° 31′ S.).
30. 18h. 0m. Jupiter at opposition to the Sun.

COMET 1910*a*.—In these columns last week reference was made to two drawings, of comet 1910*a*, which are now reproduced from the *Comptes rendus* (No. 7, p. 370, February 14). They were made by M. Esclangon, and illustrate the remarkable change which took place in the appearance of the comet's head between January 22 and 30.



January 22. January 30.

M. Esclangon points out that such apparent changes may be produced in two ways:—(1) by actual changes in the comet itself; (2) or by the different angles at which it is presented to the observer. While great real changes undoubtedly took place in comet 1910*a*, a certain proportion of the apparent change can be explained by the different aspect, for on January 22 the angle made by the tail with the line-of-sight (comet-earth) was 96°, whilst on January 30 it was 133°; but, apart from this, there was a real change in brightness and in the condensation of the nucleus consequent upon the comet's recession from the sun; on the former date its distance was about 0·25, on the latter about 0·55, astronomical unit.

M. J. Comas Sola also made a special study of the figure of the comet, and gives his results in the same